

In The Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-27. (Cancelled)

28. (Previously presented) A system for the plasma treatment of a plurality of parts at one time, comprising:

a reaction chamber having an open bottom;

a chamber base sealingly engageable with said bottom of said reaction chamber to form a treatment chamber;

a lifting device coupled with said reaction chamber and operable to lift said reaction chamber from said chamber base;

a guide along which each of the plurality of parts may be moved;

a transfer mechanism operable to transfer the plurality of parts along said guide to a plurality of treatment positions within said treatment chamber when said reaction chamber is disengaged from said chamber base;

a plasma-generating device operable to produce a plasma within said treatment chamber for treating the plurality of parts; and

an electronic control system that controls said transfer mechanism for transferring the plurality of parts to said plurality of treatment positions.

29. (Previously presented) The system of claim 28, wherein said transfer mechanism comprises:

a vertically-positionable transfer arm capable of selective engagement with each of the plurality of parts; and

a linear drive assembly for moving said transfer arm along the length of the treatment chamber.

30. (Previously presented) The system of claim 28, further comprising:

a first position actuator and a second position actuator positioned on opposed ends of said treatment chamber, said first and second position actuators capable of horizontal movement,

an input carrier mounted on said first position actuator, said input carrier including a conveyor capable of conveying each part to a location adjacent said guide; and

an output carrier mounted on said second position actuator, said output carrier comprising a conveyor capable of conveying each part to a location removed from said guide.

31. (Previously presented) The system of claim 28, wherein said electronic control system further comprises a plurality of sensors that provide information regarding the position of said transfer mechanism.

32. (Previously presented) The system of claim 28, wherein said guide is located within said treatment chamber when said reaction chamber is fitted to said chamber base.

33. (Previously presented) The system of claim 32, wherein said plasma generating device includes an electrode and said guide is mounted to said electrode.

34. (Previously presented) The system of claim 33, wherein said guide is capable of supporting the plurality of parts when the plurality of parts are positioned in said plurality of treatment positions.

35. (Previously presented) The system of claim 32, wherein said guide is capable of supporting the plurality of parts when the plurality of parts are positioned in said plurality of treatment positions.

36. (Previously presented) The system of claim 28, wherein said electronic control system comprises a microprocessor interfaced with said transfer mechanism by SMEMA communication.

37. (Previously presented) A system for the plasma treatment of a plurality of parts at one time, comprising:

a reaction chamber having an open bottom;

a chamber base sealingly engageable with said bottom of said reaction chamber to form a treatment chamber;

a lifting device coupled with said reaction chamber and operable to lift said reaction chamber from said chamber base;

a plasma-generating device operable to produce a plasma within said treatment chamber for treating the plurality of parts, said plasma-generating device including a plurality of vertically spaced horizontal electrodes;

a plurality of vertically spaced guides forming multiple levels along which the plurality of parts may be moved to a plurality of treatment positions within the treatment chamber, each of said plurality of guides associated with a respective one of said plurality of horizontal electrodes; and

a transfer mechanism operable to transfer the plurality of parts along said plurality of guides to said plurality of treatment positions.

38. (Previously presented) The system of claim 37, further comprising an electronic control system that controls said transfer mechanism for transferring the plurality of parts to said treatment positions.

39. (Previously presented) The system of claim 37, wherein said plurality of guides comprises a plurality of horizontally spaced guide rail pairs adapted to receive respective ones of the plurality of parts therebetween.

40. (Previously presented) The system of claim 37, further comprising:

an input carrier operable to convey each of the plurality of parts adjacent said plurality of guides; and

an output carrier operable to convey each part to a location removed from said plurality of guides,

said input and output carriers each capable of carrying the plurality of parts along said multiple levels.

41. (Previously presented) The system of claim 40, wherein each of said input and output carriers is horizontally and vertically movable for positioning said input and output carriers adjacent to said plurality of vertically spaced guides.

42. (Previously presented) The system of claim 37, wherein said plurality of guides is located within said treatment chamber when said reaction chamber is fitted to said chamber base.

43. (Previously presented) The system of claim 42, wherein each of said plurality of guides is mounted to a respective one of said plurality of horizontal electrodes.

44. (Previously presented) The system of claim 43, wherein said plurality of guides are capable of supporting the plurality of parts when the plurality of parts are positioned in said plurality of treatment positions.

45. (Previously presented) The system of claim 42, wherein said plurality of guides are capable of supporting the plurality of parts when the plurality of parts are positioned in said plurality of treatment positions.

Claims 46-48. (Cancelled)

49. (Previously presented) A system for the plasma treatment of a part, comprising:

- a reaction chamber having an open bottom;
- a chamber base sealingly engageable with said bottom of said reaction chamber to form a treatment chamber;
- a lifting device coupled with said reaction chamber and operable to lift said reaction chamber from said chamber base;
- a guide along which the part may be moved;
- an input carrier adapted to hold the part adjacent to said guide prior to transfer into the treatment chamber;
- an output carrier adapted to receive the part from said guide following plasma treatment;
- a transfer mechanism operable to transfer the part along said guide when said reaction chamber is disengaged from said chamber base; and
- a plasma-generating device operable to produce a plasma within said treatment chamber for treating the part.

50. (Previously presented) The system of claim 49, wherein said transfer mechanism is vertically and horizontally positionable relative to said guide.

Claims 51-64. (Cancelled)